



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,016	11/28/2001	Eric Cheng	5694.P079	2678
25096	7590	02/14/2005	EXAMINER	
PERKINS COIE LLP PATENT-SEA P.O. BOX 1247 SEATTLE, WA 98111-1247			GRIER, LAURA A	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 02/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/996,016

Applicant(s)

CHENG, ERIC

Examiner

Laura A Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1-7** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding independent claim 1, line 2 and lines 3-4, respectively, recite “headphone-like or earphone-like device”. The cited claim language provides more than one interpretation: one interpretation renders the device being a headphone or earphone device, which is known as a device supporting speakers worn the about head of a user, and covering, worn over or inserted in the ear of a user; and the second interpretation renders the any type of device located in the vicinity of or about the head of the user comprising speakers, which may include speakers positioned near the head (ear) of the user, glasses that comprises speakers that are worn over the ear user, or just a simple communication device with speaker(s) worn in the ear of a user. Thus the claim language is indefinite.

For examination purposes, the term headphone or earphone-like, will be considered to be any type hearing device in the close proximity of the user’s ears and head or is utilized by the user’s ears and head.

Art Unit: 2644

3. Regarding independent claim 3, lines 2, 3, 4-5, 8, and 17, respectively, recite “headphone-like or earphone-like device”. The cited claim language provides more than one interpretation: one interpretation renders the device being a headphone or earphone device, which is known as a device supporting speakers worn the about head of a user, and covering, worn over or inserted in the ear of a user; and the second interpretation renders the any type of device located in the vicinity of or about the head of the user comprising speakers, which may include speakers positioned near the head (ear) of the user, glasses that comprises speakers that are worn over the ear user, or just a simple communication device with speaker(s) worn in the ear of a user. Thus the claim language is indefinite.

4. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pollack, U. S. Patent No. 6356644 in view of Scofield.

Regarding **claim 3**, Pollack discloses an earphone (surround sound) speaker. Pollack’s disclosure comprises

a headphone with casings (col. 3, lines 67 – col. 4, lines 1-2), in which the casing may comprises one or more speakers each and with casing be able to be positioned to the front or back of the user’s ears and receiving individual signals, so at least one of the speakers when the casing is positioned to the back of the user’s heads constitutes as a rear speaker (col. 4, lines 2-33 –figure 3), which reads a front speakers and receiving sound therein, a rear right and rear left speaker on both sides to created rear channel sound effect; the shape of the casings to do not cover a user’s whole ear (figures 1-3 and 5). Even though Pollack suggest a speaker for

Art Unit: 2644

producing a low frequency signal, Pollack fails to specifically disclose the headphones receiving sound from a sub-woofer speaker.

The examiner takes official notice that the use of subwoofers was well known in the art. Thus, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Pollack by implementing a subwoofer for providing enhanced low frequency signals.

Further, Pollack disclosure is focused on providing a more enhanced and realistic three-dimensional sound. However, Pollack fails to disclose a means for creating head related transfer functions (HRTF).

Regarding the HRTF, in a similar field of endeavor, Scofield et al. (herein, Scofield) discloses a head mounted surround sound system. Scofield's disclosure comprises binaural processing or processors/virtual positioning filters (impulse filters) – col. 11, lines 30-46 and col. 12, lines 1-33, which reads on a means for creating HRTF.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Pollack by implementing a processor for creating HRTF for the purpose of enhancing a listener's hearing perception as though he or she is in a recording studio at the time of the production or musical performance (real-time simulation) as taught by Scofield.

Regarding **claim 4**, Pollack and Scofield (herein, Pollack combination) discloses everything claimed as applied above (see claim 3). Pollack combination (Scofield) obviously discloses binaural processing or processors/virtually positioning filters, an obvious indication of

Art Unit: 2644

HRTF generating means, in which delaying a signal and filtering are techniques for generating HRTF or determining head acoustics (col. 11, lines 30-46, col. 12, lines 1-33).

Regarding **claim 5**, Pollack combination discloses everything claimed as applied above (see claim 3). Pollack combination (Scofield) further discloses an infrared transmitter (figure 17 –reference 286), which indicates a wireless signal emitter, therein. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Pollack combination for enhancing the structure of the headphone device with the convenience of wireless transmission.

Regarding **claim 6**, Pollack combination discloses everything claimed as applied above (see claim 5). Pollack combination (Scofield) further discloses an infrared transmitter (figure 17 –reference 286), which transmits to speakers (col. 13, lines 36-38), which obviously indicates a wireless signal receiver, therein. It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the Pollack combination for enhancing the structure of the headphone device with the convenience of wireless transmission.

Regarding **claim 7**, Pollack combination discloses everything claimed as applied above (see claim 4). Pollack combination fails to disclose the time delay determined as a distance between the user and the front speakers divided by the velocity of the sound in air (herein, delay time). Velocity is a measurement of distance verses time (in simple terms, in reference to speed of sound). Thus, it would have been obvious to one of the ordinary skill in the art at the time the

invention was made modify the invention of Scofield by implement delay time for the purpose of determining the time interval in which the signal is delayed.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 3 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 5 of copending Application No.

10014010. Although the conflicting claims are not identical, they are not patentably distinct from each other because each relates to audio speaker device positioned on the ears of a listener's for receiving sound for the front, rear and subwoofer speakers to a three-dimensional sound effect.

Regarding claim 3, claim 5 of copending application 10014010 recites a means for compensating rear sound effect comprising front speakers (left and right), a subwoofer, rear speakers attached to a device with main frames, wherein the device cannot cover the whole ear of a user; and a means for creating head related transfer functions (HRTF), which reads on a headphone or earphone device, therein comprising rear speakers on each side of the headphone

or earphone device, and receiving a sound from front speakers and a subwoofer , and means for creating a virtual speaker of a rear side for generating HRTF.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 1-2 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

#### *Response to Arguments*

8. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the applicant's arguments and explanation of the 112 rejection of claims 1-7, regarding the claim language, "headphone-like or earphone-like", the 112 rejection is maintain due the fact that claim language is clearly indefinite. The explained meaning of "headphone-like or earphone-like" for clarity of the invention in respect to the disclosure is clear to the examiner, however, such language is not clearly defined claim language. Acceptable claim language such as, headphone device or earphone device, is suggested.

The applicant's arguments against the prior art, Schofield, are essentially that Scofield fails to disclose the headphone (earphone device) claimed, lacking simultaneous reception of the rear, front and subwoofer signal. A new reference of prior art have been in modification with Scofield that discloses a headphone device with a plurality of speakers capable of receiving front, rear and subwoofer speaker signals, and not covering the entire ear of the user, and enable



Art Unit: 2644

means of creating head related transfer functions. In respect the simultaneous function the three speaker signals and broadest interpretation of the claim language, the simultaneous function of the receiving the signals has not been specifically claimed. All these signals (front, rear and subwoofer) can be achieved via a headphone device, each signal output by its respective speaker type or function, which clarifies an independent headphone. In respect to argument of the HRTF, both Scofield and the new reference of prior art discloses enabling a 3D sound environment, wherein the incorporation of well techniques of creating HRTF would have been an obvious function to one of ordinary skill.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N Tran can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Art Unit: 2644

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in cursive script, appearing to read "Laura A. Grier".

Laura A. Grier  
January 25, 2005